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EXAMINER	
WASSUM, LUKE S	

ART UNIT	PAPER NUMBER
2177	

DATE MAILED: 03/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/435,034	NISHIZAWA ET AL.	
	Examiner	Art Unit	
	Luke S. Wassum	2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *25 May 2000* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Preliminary Amendment

1. Receipt is acknowledged of Applicant's Preliminary Amendment, filed 25 May 2000.

2. As a result of the Amendment, claims 1-34 have been amended. Claims 1-34 are now presented for examination.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. An Information Disclosure Statement, filed 22 November 1999, has been received and considered. See attached form PTO-1449.

Drawings

5. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 25 May 2000 have been approved by the examiner.

A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Specification

6. Receipt is acknowledged of Applicant's substitute Specification, as requested by the examiner, filed 6 February 2002. All references to the Specification in examiner's communications containing page and line numbers will refer to the substitute Specification.

7. The disclosure is objected to because of the following informalities:

a) on page 5, line 21, "109 bytes" should be "10^9 bytes";

b) on page 11, line 13, "tan" should be "can"; and

c) on page 22, line 15, "accor4ing" should be "according".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claim 8 recites the limitation "said load management unit" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1, 2, 6, 8, 9, 11-16, 19-22, 24 and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rabinovich** (U.S. Patent 6,256,675) in view of **Olson et al.** (U.S. Patent 5,995,980).

14. Regarding claims 1, 19, 24, 26 and 28-31, **Rabinovich** teaches a data warehouse system, method and recording medium substantially as claimed, comprising:

a) at least one client device (see Requester 109 in Figure 1);

b) at least one server (see hosts 103, 104 and 105 in Figure 1);

c) at least one data collector for collecting data requested by the user (see discussion of Request Distributor, col. 4, lines 40-65);

d) a network (see network 102 in Figure 1);

said data collector including:

i) a client management unit for managing at least one client device (see discussion of Request Distributor, col. 4, lines 40-65);

ii) a query analysis unit for analyzing a request from said client device (see discussion of Request Distributor, col. 4, lines 40-65);

iii) a replica creation request analysis unit for analyzing each replica creation request from the client device (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23);

iv) a communication control unit for selecting a procedure for accessing at least one of said servers according to analysis result from said query analysis unit (see discussion of Request Distributor, col. 4, lines 40-65); and

v) a replica creation management unit for creating a replica according to an analyzed creation request (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23);

and said server including:

i) a communication control unit for receiving a query analysis result transmitted from at least one of a plurality of said data collectors (see discussion of Request Distributor, col. 4, lines 40-65);

ii) a query processing unit for searching the database of each server and creating a response to said received query analysis result (see discussion of Request Distributor, col. 4, lines 40-65); and

iii) means for effecting control so that at least either said server or said data collector can select whether to deliver data under the control of said server or said data collector (see discussion of Request Distributor, col. 4, lines 40-65).

Rabinovich does not explicitly teach an implementation of the data warehouse system where the objects correspond to databases.

Olson et al., however, teaches a data warehouse system where the objects correspond to databases, including:

a) at least one client device (see col. 5, lines 61-67; see also User Clients 24_1, 24_{n-1} and 24_n in Figure 1);

b) at least one server (see col. 5, lines 55-60; see also Central Computer 11 in Figure 1);

c) at least one data collector for collecting data requested by the user (see col. 6, lines 28-56; see also Figure 2; see also col. 8, lines 25-67);

d) a database for storing data collected by the data collector (see col. 5, lines 61-67; see also databases 22_1, 22_{n-1} and 22_n in Figure 1);

e) a network (see col. 3, lines 50-52); and

wherein each replica is managed so that a replica can be shared among cooperative data collectors when processing said query using a replica management table which corresponds the content of said created replica to information related to the location

of said replica stored in said database (see col. 1, lines 21-24; see also col. 3, lines 34-36; see also col. 7, line 19 through col. 8, line 25; see also Figure 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the replica management and query distribution functions as taught by **Rabinovich** to a partially replicated database system such as that taught by **Olson et al.**, since replicated databases reduce contention for access to a primary database, as well as providing a backup in the event of media failure (see col. 1, lines 17-26).

15. Regarding claims 2, 6 and 9, **Rabinovich** teaches a data warehouse system substantially as claimed, comprising:

a) at least one client device (see Requester 109 in Figure 1);

b) at least one server (see hosts 103, 104 and 105 in Figure 1);

c) at least one data collector for collecting data requested by the user (see discussion of Request Distributor, col. 4, lines 40-65);

said data collector including:

i) a replica creation request analysis unit for analyzing each replica creation request from the client device (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23); and

ii) a replica creation management unit for creating a replica according to an analyzed creation request, said request including at least one of the conditions for specifying a range, precision, freshness, and priority of data to be accessed by

said client device (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23); and

said server creates a replica in said data collector before processing a query from a client device, according to a replica creation request to which said client device gives part or the whole of the data to access when processing a query (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23).

Rabinovich does not explicitly teach an implementation of the data warehouse system where the objects correspond to databases.

Olson et al., however, teaches a data warehouse system where the objects correspond to databases, including:

a) at least one client device (see col. 5, lines 61-67; see also User Clients 24_1, 24_{n-1} and 24_n in Figure 1);

b) at least one server (see col. 5, lines 55-60; see also Central Computer 11 in Figure 1);

c) at least one data collector for collecting data requested by the user (see col. 6, lines 28-56; see also Figure 2; see also col. 8, lines 25-67);

d) a database for storing data collected by the data collector (see col. 5, lines 61-67; see also databases 22_1, 22_{n-1} and 22_n in Figure 1); and

wherein each replica is managed using a replica management table which corresponds the content of said created replica to information related to the location of said replica stored in said database (see col. 1, lines 21-24; see also col. 3, lines 34-36; see also col. 7, line 19 through col. 8, line 25; see also Figure 3), and

the data collector includes a client management unit for grouping a plurality of client devices which can share data according to an analyzed creation request and managing a plurality of said client devices (see col. 5, lines 61-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the replica management and query distribution functions as taught by **Rabinovich** to a partially replicated database system such as that taught by **Olson et al.**, since replicated databases reduce contention for access to a primary database, as well as providing a backup in the event of media failure (see col. 1, lines 17-26).

16. Regarding claim 8, **Rabinovich** further teaches a system wherein said server includes a server negotiation unit for negotiating with said data collector according to server load information estimated by said load management unit, computer resources usable by said server and by said data collector (see col. 1, line 60 through col. 2, line 9; see also col. 8, line 50 through col. 9, line 43; see also Figures 6-9).

17. Regarding claims 11-13, **Rabinovich** teaches a data warehouse system substantially as claimed, comprising:

a) at least one client device (see Requester 109 in Figure 1);

b) at least one server (see hosts 103, 104 and 105 in Figure 1);

c) at least one data collector for collecting data requested by the user (see discussion of Request Distributor, col. 4, lines 40-65);

said data collector including:

i) a replica creation request analysis unit for analyzing each replica creation request from the client device (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23);

ii) a replica creation management unit for creating a replica according to an analyzed creation request, said request including at least one of the conditions for specifying a range, precision, freshness, and priority of data to be accessed by said client device (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23); and

iii) a data collector negotiation unit for determining data for which a replica is to be created through a negotiation with said server according to a replica creation request, computer resources usable by said data collector and by said server when a replica is to be created in said replica creation management unit (see col. 1, line 60 through col. 2, line 9; see also col. 8, line 50 through col. 9, line 43; see also Figures 6-9); and

said server creates a replica in said data collector before processing a query from a client device, according to a replica creation request to which said client device gives part or the whole of the data to access when processing a query (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23);

said server includes a server negotiation unit for negotiating with said data collector according to server load information estimated by said load management unit, computer resources usable by said server and by said data collector (see col. 1, line 60 through col. 2, line 9; see also col. 8, line 50 through col. 9, line 43; see also Figures 6-9); and

said server includes a load management unit for managing the load information of said server and estimating the server load when processing a delivery request accepted newly for said delivery data (see col. 1, line 60 through col. 2, line 9; see also col. 8, line 50 through col. 9, line 43; see also Figures 6-9).

Rabinovich does not explicitly teach an implementation of the data warehouse system where the objects correspond to databases.

Olson et al., however, teaches a data warehouse system where the objects correspond to databases, including:

a) at least one client device (see col. 5, lines 61-67; see also User Clients 24_1, 24_{n-1} and 24_n in Figure 1);

b) at least one server (see col. 5, lines 55-60; see also Central Computer 11 in Figure 1);

c) at least one data collector for collecting data requested by the user (see col. 6, lines 28-56; see also Figure 2; see also col. 8, lines 25-67);

d) a database for storing data collected by the data collector (see col. 5, lines 61-67; see also databases 22_1, 22_{n-1} and 22_n in Figure 1); and

wherein each replica is managed using a replica management table which corresponds the content of said created replica to information related to the location of said replica stored in said database (see col. 1, lines 21-24; see also col. 3, lines 34-36; see also col. 7, line 19 through col. 8, line 25; see also Figure 3), and

the data collector includes a client management unit for grouping a plurality of client devices which can share data according to an analyzed creation request and managing a plurality of said client devices (see col. 5, lines 61-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the replica management and query distribution functions as taught by **Rabinovich** to a partially replicated database system such as that taught by **Olson et al.**, since replicated databases reduce contention for access to a primary database, as well as providing a backup in the event of media failure (see col. 1, lines 17-26).

18. Regarding claims 14-16, **Rabinovich** additionally teaches a system wherein said server negotiation unit includes a response processing unit for returning a response of whether to accept said replica creation request or reject or accept said replica creation request on a condition (see line 5 of ReplicateRequest() routine pseudocode, col. 16), said response processing unit includes a transfer unit for giving a new condition of said replica creation request to a response accepted on a condition, then transferring said response with a new condition to said data collector (see DecidePlacement() routine pseudocode, col. 14-15), and said data collector negotiation unit includes a processing unit for giving said new condition transferred and combined with said response to said client (see call to OffloadRequest(s) at bottom of DecidePlacement() routine pseudocode, col. 15).

19. Regarding claim 20, **Rabinovich** teaches a data warehouse system substantially as claimed, comprising:

a) at least one client device (see Requester 109 in Figure 1);

b) at least one server (see hosts 103, 104 and 105 in Figure 1);

c) at least one data collector for collecting data requested by the user (see discussion of Request Distributor, col. 4, lines 40-65);

d) a network (see network 102 in Figure 1);

said data collector including:

i) a client management unit for managing at least one client device (see discussion of Request Distributor, col. 4, lines 40-65);

ii) a query analysis unit for analyzing a request from said client device (see discussion of Request Distributor, col. 4, lines 40-65);

iii) a replica creation request analysis unit for analyzing each replica creation request from the client device (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23);

iv) a communication control unit for selecting a procedure for accessing at least one of said servers according to analysis result from said query analysis unit (see discussion of Request Distributor, col. 4, lines 40-65); and

v) a replica creation management unit for creating a replica according to an analyzed creation request (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23); and

and said query analysis unit includes:

i) a processing location decision unit for selecting a data collector which processes said query using said replica management table (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31);

ii) a replica usability decision unit for determining whether or not a query can be processed using a replica stored in a data collector which should process said query (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31); and

iii) a processing unit for directing said query processing unit for a query processing using said replica without transferring any query to said server if said query processing is possible using said replica in said data collector (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31); and

iv) a transfer unit for transferring said query to said server if, said query processing is impossible using said replica stored in said data collector (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31).

Rabinovich does not explicitly teach an implementation of the data warehouse system where the objects correspond to databases.

Olson et al., however, teaches a data warehouse system where the objects correspond to databases, including:

a) at least one client device (see col. 5, lines 61-67; see also User Clients 24_1, 24_{n-1} and 24_n in Figure 1);

b) at least one server (see col. 5, lines 55-60; see also Central Computer 11 in Figure 1);

c) at least one data collector for collecting data requested by the user (see col. 6, lines 28-56; see also Figure 2; see also col. 8, lines 25-67);

d) a database for storing data collected by the data collector (see col. 5, lines 61-67; see also databases 22_1, 22_{n-1} and 22_n in Figure 1);

e) a network (see col. 3, lines 50-52); and

wherein each replica is managed using a replica management table which corresponds the content of said created replica to information related to the location of said replica stored in said database (see col. 1, lines 21-24; see also col. 3, lines 34-36; see also col. 7, line 19 through col. 8, line 25; see also Figure 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the replica management and query distribution functions as taught by **Rabinovich** to a partially replicated database system such as that taught by **Olson et al.**, since replicated databases reduce contention for access to a primary database, as well as providing a backup in the event of media failure (see col. 1, lines 17-26).

20. Regarding claim 21, **Rabinovich** additionally teachs a system wherein said processing location decision unit includes:

a) a processing unit responsive to a result of said query analysis unit for determining whether or not the same value is taken in both said query and said replica or one of them includes the other (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31); and

b) a processing unit for determining said position using said relationship of the same or inclusion and said replica management table (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31).

21. Regarding claim 22, **Rabinovich** additionally teachs a system wherein said processing location decision unit includes:

a) a processing unit responsive to a result of said query analysis unit for determining whether or not the same value is taken in both said query and said replica or one of them includes the other (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31);

b) a processing unit for judging whether or not the same value is taken in both said query and said replica or one of them includes the other (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31);

c) a processing unit for identifying said data collector in which said replica exists as a location to process said query if said relationship is decided "yes" (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31); and

d) a processing unit for identifying said server as said location to process said query if said relationship is decided "no" (see discussion of Request Distributor, col. 4, lines 40-65; see also col. 7, line 45 through col. 8, line 31).

22. Regarding claim 27, **Olson et al.** additionally teaches a data collector which uses a general-purpose database management system for said replica database (see col. 7, lines 19-36).

23. Claims 4, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rabinovich** (U.S. Patent 6,256,675) in view of **Olson et al.** (U.S. Patent 5,995,980) in view of **Sugaya et al.** (U.S. Patent 5,970,485).

24. Regarding claims 4 and 5, **Rabinovich** teaches a data warehouse system substantially as claimed, comprising:

a) at least one client device (see Requester 109 in Figure 1);

b) at least one server (see hosts 103, 104 and 105 in Figure 1);

c) at least one data collector for collecting data requested by the user (see discussion of Request Distributor, col. 4, lines 40-65);

d) a network (see network 102 in Figure 1);

said data collector including:

i) a client management unit for managing at least one client device (see discussion of Request Distributor, col. 4, lines 40-65);

ii) a query analysis unit for analyzing a request from said client device (see discussion of Request Distributor, col. 4, lines 40-65);

iii) a replica creation request analysis unif for analyzing each replica creation request from the client device (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23);

iv) a communication control unit for selecting a procedure for accessing at least one of said servers according to analysis result from said query analysis unit (see discussion of Request Distributor, col. 4, lines 40-65); and

v) a replica creation management unit for creating a replica according to an analyzed creation request (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23);

and said server including:

i) a communication control unit for receiving a query analysis result transmitted from at least one of a plurality of said data collectors (see discussion of Request Distributor, col. 4, lines 40-65);

ii) a query processing unit for searching the database of each server and creating a response to said received query analysis result (see discussion of Request Distributor, col. 4, lines 40-65); and

iii) a load management unit for managing the load information of said server and estimating the server load when processing a delivery request accepted newly for said delivery data (see col. 1, line 60 through col. 2, line 9; see also col. 8, line 50 through col. 9, line 43; see also Figures 6-9).

Rabinovich does not explicitly teach an implementation of the data warehouse system where the objects correspond to databases.

Olson et al., however, teaches a data warehouse system where the objects correspond to databases, including:

a) at least one client device (see col. 5, lines 61-67; see also User Clients 24_1, 24_{n-1} and 24_n in Figure 1);

b) at least one server (see col. 5, lines 55-60; see also Central Computer 11 in Figure 1);

c) at least one data collector for collecting data requested by the user (see col. 6, lines 28-56; see also Figure 2; see also col. 8, lines 25-67);

d) a database for storing data collected by the data collector (see col. 5, lines 61-67; see also databases 22_1, 22_{n-1} and 22_n in Figure 1);

e) a network (see col. 3, lines 50-52); and

wherein each replica is managed using a replica management table which corresponds the content of said created replica to information related to the location of said replica stored in said database (see col. 1, lines 21-24; see also col. 3, lines 34-36; see also col. 7, line 19 through col. 8, line 25; see also Figure 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the replica management and query distribution functions as taught by **Rabinovich** to a partially replicated database system such as that taught by **Olson et al.**, since replicated databases reduce contention for access to a primary database, as well as providing a backup in the event of media failure (see col. 1, lines 17-26).

Neither **Rabinovich** nor **Olson et al.** teaches a system including the management of delivery data including a region condition, quality condition, delivery destination and delivery method.

Sugaya et al., however, teaches a system including the management of delivery data including a region condition, quality condition, delivery destination and delivery method (see col. 18,

lines 1-29; see also an extensive discussion of the delivery of data in the second embodiment, col. 18, line 30 thorough col. 24, line 16).

It would have been obvious to one of ordinary skill in the art at the time of the invention to manage the delivery of data to clients as claimed, since the databases of the invention are only partially replicated, and so there is but a subset of data to be updated for each replica, and managing the delivery of only that data necessary conserves processor time on the server and bandwidth on the network.

25. Regarding claim 7, **Rabinovich** further teaches a system wherein said data collector includes a data collector negotiation unit for determining data for which a replica is to be created through a negotiation with said server according to a replica creation request, computer resources usable by said data collector and by said server when a replica is to be created in said replica creation management unit (see col. 1, line 60 through col. 2, line 9; see also col. 8, line 50 through col. 9, line 43; see also Figures 6-9).

26. Claims 17, 18 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rabinovich** (U.S. Patent 6,256,675) in view of **Olson et al.** (U.S. Patent 5,995,980) as applied to claims 1, 2, 6, 8, 9, 11-16, 19-22, 24 and 26-31 above, and further in view of **Sugaya et al.** (U.S. Patent 5,970,485).

27. Regarding claims 17 and 18, **Rabinovich** and **Olson et al.** teach a system substantially as claimed.

Neither **Rabinovich** nor **Olson et al.** teaches a system including the management of replica creation and delivery data including a region condition, quality condition, delivery destination and delivery method.

Sugaya et al., however, teaches a system including the management of replica creation and delivery data including a region condition, quality condition, delivery destination and delivery method (see col. 18, lines 1-29; see also an extensive discussion of the delivery of data in the second embodiment, col. 18, line 30 thorough col. 24, line 16).

It would have been obvious to one of ordinary skill in the art at the time of the invention to manage the creation of replicas and delivery of data to clients as claimed, since the databases of the invention are only partially replicated, and so there is but a subset of data to be updated for each replica, and managing the delivery of only that data necessary conserves processor time on the server and bandwidth on the network.

28. Regarding claim 25, **Sugaya et al.** further teaches a system wherein said replica creation request analysis unit includes a processing unit for handling data in said data collector as the latest data at the current time if said replica creation request includes a condition for specifying freshness of data and the difference between the updating time when data is updated in said server and the current time is small (see discussion of the "delay time" delivery condition in col. 23, lines 11-15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a 'freshness' or 'delay time' criteria for data replication, since it is common for data to be perishable, and under such circumstances, it would be a waste of processor time and bandwidth to download data that is old enough that it is not useful to the user.

29. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Rabinovich** (U.S. Patent 6,256,675) in view of **Olson et al.** (U.S. Patent 5,995,980) as applied to claims 1, 2, 6, 8, 9, 11-16, 19-22, 24 and 26-31 above, and further in view of **Admitted Prior Art**.

30. Regarding claim 23, **Rabinovich** and **Olson et al.** teach a system substantially as claimed.

Neither **Rabinovich** nor **Olson et al.** teaches a system wherein the processing unit includes a unit for determining that the same value is taken in both that uses the Query Equivalent Decision Method, and a unit for determining that one of them includes the other uses the Query Containment Decision Method.

However, **Admitted Prior Art** teaches that the **Ullman** reference ("Principles of Database and Knowledge-Base Systems") discloses the Query Equivalent Decision Method and the Query Containment Decision Method (see page 21, lines 1-8 in the specification).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the prior art Equivalent and Containment methods, since these allow one to efficiently determine what the correspondence is between two queries, and as such, would facilitate the

determination of whether the data contained in a partially replicated database would satisfy the query request of a user.

31. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rabinovich** (U.S. Patent 6,256,675) in view of **Olson et al.** (U.S. Patent 5,995,980) in view of **Hartley et al.** (U.S. Patent Application Publication US 2001/0,032,207-A1).

32. Regarding claims 33 and 34, **Rabinovich** teaches an accounting system and method used in a data warehouse substantially as claimed, comprising:

a) a client management unit for managing at least one client device (see discussion of Request Distributor, col. 4, lines 40-65);

b) a query analysis unit for analyzing a request from said client device (see discussion of Request Distributor, col. 4, lines 40-65);

c) a replica creation management unit for creating a replica according to an analyzed creation request (see discussion of the replica placement decision making process, col. 8, line 32 through col. 9, line 23); and

wherein said replica creation management unit includes:

i) a data collector negotiation unit for determining data for which a replica is to be created through a negotiation with said server according to a replica creation request, computer resources usable by said data collector and by said server when a replica is to be created in said replica creation management unit (see col. 1, line 60 through col. 2, line 9; see also col. 8, line 50 through col. 9, line 43; see also Figures 6-9); and

ii) a server negotiation unit for negotiating with said data collector according to server load information estimated by said load management unit, computer resources usable by said server and by said data collector (see col. 1, line 60 through col. 2, line 9; see also col. 8, line 50 through col. 9, line 43; see also Figures 6-9).

Rabinovich does not explicitly teach an implementation of the data warehouse system where the objects correspond to databases.

Olson et al., however, teaches a data warehouse system where the objects correspond to databases, wherein each replica is managed using a replica management table which corresponds the content of said created replica to information related to the location of said replica stored in said database (see col. 1, lines 21-24; see also col. 3, lines 34-36; see also col. 7, line 19 through col. 8, line 25; see also Figure 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the replica management and query distribution functions as taught by **Rabinovich** to a partially replicated database system such as that taught by **Olson et al.**, since replicated databases reduce contention for access to a primary database, as well as providing a backup in the event of media failure (see col. 1, lines 17-26).

Neither **Rabinovich** nor **Olson et al.** explicitly teaches a system wherein a charge for data is determined.

Hartley et al., however, teaches a system wherein a charge for data is determined (see paragraph 0093; see also Figure 14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include facilities for calculating a charge for data, since a data warehouse is normally operated in order to provide data services for a fee, the calculation of a fee thus being integral to the operation of the system.

33. Claims 3 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rabinovich** (U.S. Patent 6,256,675) in view of **Olson et al.** (U.S. Patent 5,995,980) as applied to claims 1, 2, 6, 8, 9, 11-16, 19-22, 24 and 26-31 above, and further in view of **Chappell** ("Understanding ActiveX and OLE").

34. Regarding claims 3 and 31, **Rabinovich** and **Olson et al.** teach a system substantially as claimed.

Neither **Rabinovich** nor **Olson et al.** teaches a system wherein said replica creation management unit includes a program creation unit for creating a program for receiving a replica creation request dynamically from a client device by combining software parts received through said network.

Chappell, however, teaches that Distributed COM objects can be transparently accessed and combined in processes either local or remote (see Chapter 10 Distributed COM).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine software parts to create a program for receiving a replica creation request dynamically from a client, since this allows a machine to create and invoke the methods of objects on remote machines, which means that software objects need not exist on all nodes of a network in order to be usable by all nodes, thus saving disk space.

35. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Rabinovich** (U.S. Patent 6,256,675) in view of **Olson et al.** (U.S. Patent 5,995,980) as applied to claims 1, 2, 6, 8, 9, 11-16, 19-22, 24 and 26-31 above, and further in view of **Castelli et al.** (U.S. Patent 5,978,788) in view of **Fein et al.** (U.S. Patent 5,924,108) in view of **Sonohara et al.** (U.S. Patent 5,898,794) in view of **Uenoyama et al.** (U.S. Patent 5,982,432) in view of **Schwartz** (U.S. Patent 4,755,889).

36. Regarding claim 10, **Rabinovich** and **Olson et al.** teach a system substantially as claimed.

Neither **Rabinovich** nor **Olson et al.** teaches a system wherein said data extraction unit processes data precision through specific processes according to the object data type.

However, **Castelli et al.** teaches the sampling of data from a database (see col. 2, lines 42-57);

Fein et al. teaches the creation of a summary for a text document (see col. 7, line 46 through col. 8, line 22);

Sonohara et al. teaches the use of compression and color reduction techniques in image data (see col. 1, line 60 through col. 2, line 57);

Uenoyama et al. teaches various compression techniques in video (see col. 2, line 43 through col. 3, line 36); and

Schwartz teaches the reduction of sampling rates and adjustment of sound quality in audio data (see col. 2, lines 36-51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use such techniques, since they allow the retrieval of data while conserving bandwidth when the data must be transferred across a network.

Conclusion

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sato et al. (U.S. Patent Application Publication US 2001/0,011,301-A1) teaches a communication system for relaying and receiving video data services over a network such as the Internet, wherein the details of the periodic transfer of data is configured through a Delivery Management Table.

Mahajan et al. (U.S. Patent 6,226,650) teaches a database synchronization and organization system wherein data is divided into groups, and the clients subscribe to groups having data that is of interest to that client.

Rabinovich et al. (U.S. Patent 6,167,427) teaches a system for providing access by a large number of clients to objects located at large numbers of information servers.

Cannon et al. (U.S. Patent 6,148,412) teaches a data processing system using a client-server configuration that generates and manages multiple copies of client data files.

Gifford (U.S. Patent 6,052,718) teaches a method of replica routing that automatically directs client computers that request a service to a server replica for that service.

Foltz et al. (U.S. Patent 5,978,813) teaches a database synchronization system for propagating database modifications to different replicas.

Hammond (U.S. Patent 5,758,337) teaches a system for creating database partial replicas wherein the referential integrity of the original database is maintained in the partial replica.

Torbjørnsen et al. (U.S. Patent 5,555,404) teaches a database server with a shared nothing architecture wherein the nodes of the system are divided into at least two groups that share no resources, and each table is divided into fragments distributed over all the nodes in the system.

Hvasshovd (U.S. Patent 5,423,037) teaches a database server with a shared nothing architecture wherein the nodes of the system are divided into at least two groups that share no resources, and each table is divided into fragments distributed over all the nodes in the system.

Heddaya et al. ("WebWave : Globally Load Balanced Fully Distributed Caching of Hot Published Documents") teaches a method of using large-scale dynamic caching to globally minimize server idle time, and hence maximize the aggregate server throughput of the service.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke S. Wassum whose telephone number is 703-305-5706. The examiner can normally be reached on Monday-Friday 8:30-5:30, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 703-305-9790. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

In addition, INFORMAL or DRAFT communications may be faxed directly to the examiner at 703-746-5658.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Luke S. Wassum
Art Unit 2177

lsw
March 7, 2002

JEAN R. HOMERE
PRIMARY EXAMINER